I Claim:

1. A multi-speed torque-splitting interaxle transfer case comprising:

a transfer case housing including front and rear ends and a lateral extension between the front and rear ends, the front end being a housing end that receives an input drive shaft, the rear end being a housing end from which a rear output drive shaft emerges, and the lateral extension being a housing extension through which a drive connection is made with a front output drive shaft;

a single-pinion differential gear unit supported within the transfer case housing for unequally distributing drive torque between the front and rear output drive shafts;

a planetary gear unit supported within the transfer case housing for driving the single-pinion differential gear unit at different drive speed ratios with respect to rotation of the input drive shaft;

the single-pinion differential gear unit including an internal side gear, an external side gear, and a plurality of pinion gears each interconnecting the internal and external side gears;

the planetary gear unit including a sun gear, a ring gear, and a plurality of planet gears interconnecting the sun and ring gears;

the pinion gears of the single-pinion differential gear unit and the planet gears of the planetary gear unit being mounted for rotation within a common carrier; and

the common carrier having an extended portion supporting a bearing with one end of the transfer case housing for rotatably supporting the carrier within the transfer case housing.

2. The transfer case of claim 1 in which the extended portion supports a bearing with the rear end of the transfer case housing.

3. The transfer case of claim 2 in which the extended portion of the carrier includes an external bearing surface rotatively supporting the front output drive shaft and an internal bearing surface rotatively supporting the rear output drive shaft.

4. The transfer case of claim 3 in which the external bearing surface of the extended portion of the common carrier also forms a portion of the bearing with the rear end of the transfer case housing.

5. The transfer case of claim 4 in which the rear output drive shaft passes through a center of the external side gear and is supported by the extended portion of the carrier within the front output drive shaft.

6. The transfer case of claim 1 in which the extended portion of the carrier passes through a center of the external side gear and extends concentrically between the front and rear output drive shafts.

7. The transfer case of claim 6 in which the extended portion of the carrier extends in length beyond the front output drive shaft to support the bearing with the rear end of the transfer case housing.

8. The transfer case of claim 1 in which the external side gear is coupled to the front output drive shaft, and the internal side gear is coupled to the rear output drive shaft.

9. The transfer case of claim 8 in which pitch radii of the external and internal side gears differ by an amount approximately equal to a pitch diameter of the pinion gears.

10. The transfer case of claim 9 in which the pinion gears have top lands that form bearing surfaces for supporting rotation within a first set of pockets formed in the common carrier.

11. The transfer case of claim 10 in which the planet gears have trunnions that form bearing surfaces for supporting rotation within a second set of pockets formed in the common carrier.

12. The transfer case of claim 1 in which the extended portion of the carrier is a first of two extended portions, and a second of the two extended portions supports a bearing with the front end of the transfer case housing for rotatably supporting the carrier within the transfer case housing.

13. The transfer case of claim 12 in which the second extended portion of the carrier includes an external bearing surface that forms a portion of the bearing with the front end of the transfer case housing and an internal bearing surface rotatively supporting the input drive shaft.

14. The transfer case of claim 1 in which the lateral extension is adjacent to the rear end of the housing.

15. The transfer case of claim 14 in which the lateral extension is located between the single-pinion differential gear unit and the rear end of the housing.

16. The transfer case of claim 14 further comprising a parallel drive connection with the front output drive shaft located within the lateral extension and including a member rotatively supported by the extended portion of the common carrier.

17. The transfer case of claim 16 in which the member is a sprocket.

18. The transfer case of claim 1 in which the side gears and pinion gears of the single-pinion differential gear unit have helical teeth.

19. The transfer case of claim 1 in which the sun gear, ring gear, and planet gears of the planetary gear unit have helical teeth.

20. An interaxle drive system for delivering power to front and rear drive axles of a vehicle comprising:

a transfer case connecting an input drive shaft to concentric front and rear output drive shafts;

the input drive shaft and the concentric front and rear output drive shafts being aligned with a common axis of rotation;

the input drive shaft being arranged for connection to a source of power, the front output drive shaft being arranged for connection to the front axle, and the rear output drive shaft being arranged for connection to the rear axle;

the transfer case having a housing that includes a front end through which the input drive shaft is received, a rear end through which the rear output drive shaft emerges, and a lateral extension between the front and rear ends through which a drive connection is made with the front output drive shaft;

a planetary gear unit within the transfer case housing for delivering power from the input drive shaft to the front and rear output drive shafts at different speed ratios;

a single-pinion differential gear unit within the transfer case for unequally dividing drive torque between the front and rear output drive shafts;

the planetary gear unit including sun and ring gears interconnected by planet gears;

the single-pinion differential gear unit including internal and external tooth side gears interconnected by individual pinion gears;

a common carrier mounting both the planet gears of the planetary gear unit and the pinion gears of the single-pinion differential gear unit for rotation about their axes; and

the common carrier being mounted for rotation on a bearing supported by the transfer case housing.

21. The system of claim 20 in which the rear output drive shaft is aligned with a rear propshaft that delivers power to the rear axle, and the front output drive shaft is offset from a front propshaft that delivers power to the front axle.

22. The system of claim 21 in which the drive connection between the front output drive shaft and the front propshaft is adjacent to the rear end of the transfer case housing for more closely equating lengths of the front and rear propshafts.

23. The system of claim 22 in which the drive connection between the front output drive shaft and the front propshaft includes a member rotatively supported by the common carrier.

24. The system of claim 23 in which the member is a sprocket coupled for rotation with the front output shaft.

25. The system of claim 20 in which the internal tooth side gear is connected to the rear output drive shaft, and the external tooth side gear is connected to the front output drive shaft.

26. The system of claim 25 in which the internal tooth side gear has a pitch radius that is larger than a pitch radius of the external tooth side gear by an amount approximately equal to a common pitch diameter of the pinion gears for delivering a larger percentage of an input drive torque to the rear output drive shaft than to the front output drive shaft.

27. The system of claim 26 in which the rear output drive shaft is mounted within the front output drive shaft and passes through a center of the external tooth side gear.

28. The system of claim 20 in which the bearing supporting the common carrier includes a front bearing, and the common carrier includes a front extended portion having an external bearing surface that supports the front bearing with the front end of the transfer case housing.

29. The system of claim 28 in which the front extended portion has an internal bearing surface rotatively supporting the input drive shaft.

30. The system of claim 28 in which the bearing supporting the common carrier includes a rear bearing, and the common carrier includes a rear extended portion having an external bearing surface that supports the rear bearing with the rear end of the transfer case housing.

31. The system of claim 30 in which the rear extended portion has an external bearing surface rotatively supporting the front output drive shaft and an internal bearing surface rotatively supporting the rear output drive shaft.

32. The system of claim 31 in which both the rear extended portion of the common carrier and the rear output drive shaft extend through and beyond the front output drive shaft.

33. The system of claim 32 in which the internal tooth side gear is connected to the rear output drive shaft, the external tooth side gear is connected to the front output drive shaft, and the drive connection between the front output drive shaft and the front propshaft includes a member rotatively supported by the common carrier and coupled to the front output drive shaft.

34. The system of claim 20 in which the common carrier includes a first set of pockets supporting the pinion gears of the single-pinion differential gear unit and a second set of pockets supporting the planet gears of the planetary gear unit.

35. The system of claim 20 in which the ring gear is alternately engaged with one of the transfer case housing and the common carrier.

36. The system of claim 20 in which the side gears and pinion gears of the differential gear unit have helical teeth.

37. The system of claim 20 in which the sun gear, ring gear, and planet gears of the planetary gear unit have helical teeth.

38. An interaxle transfer case for an all wheel drive vehicle having a longitudinally mounted engine comprising:

a transfer case housing having front and rear ends;

an input drive shaft being received through the front end of the transfer case housing;

a rear output drive shaft making a coaxial output connection with respect to the input shaft through the rear end of the transfer case housing;

a front output drive shaft making a parallel offset connection with respect to the input shaft between the front and rear ends of the transfer case housing;

a planetary gear unit within the transfer case housing that is shiftable into a low range mode for producing a speed reduction from the input drive shaft to the front and rear output drive shafts;

the planetary gear unit including sun and ring gears interconnected by planet gears;

a single-pinion differential gear unit within the transfer case for unequally dividing drive torque between the front and rear output drive shafts;

the differential gear unit including internal and external tooth side gears interconnected by individual pinion gears;

a common carrier mounting both the planet gears of the planetary gear unit and the pinion gears of the single-pinion differential gear unit for rotation about their axes;

the planetary gear unit providing for conveying drive power from the input drive shaft to the common carrier;

the common carrier having an outer shell for conveying drive power from the planetary gear unit around an outside of the internal tooth side gear to the mounting for the pinion gears of the differential gear unit;

the external and internal side gears providing for conveying drive power from the differential gear unit to the front and rear output shafts; and

the common carrier being mounted for rotation on a bearing supported by the transfer case housing.

39. The transfer case of claim 38 in which the planetary gear unit is located adjacent to the front end of the transfer case housing, and the differential gear unit is located adjacent to the rear end of the transfer case housing.

40. The transfer case of claim 39 in which the parallel offset connection of the front drive shaft is made between the differential gear unit and the rear end of the transfer case housing.

41. The transfer case of claim 38 in which the ring gear is shiftable from a connection with the common carrier to a connection with the transfer case housing for operating in the low range mode.

42. The transfer case of claim 41 in which the sun gear is connected to the input drive shaft, the internal tooth side gear is connected to the front output drive shaft, and the external tooth side gear is connected to the rear output drive shaft.

43. The transfer case of claim 38 in which the common carrier includes an extended portion supporting a bearing with one end of the transfer case housing for rotatably supporting the common carrier within the transfer case housing.

44. The transfer case of claim 43 in which the extended portion supports a bearing with the front end of the transfer case housing.

45. The transfer case of claim 44 in which the extended portion includes:

an external bearing surface that forms a portion of the bearing with the front end of the transfer case housing, and

an internal bearing surface rotatively supporting the input drive shaft.

46. The transfer case of claim 44 in which the extended portion of the common carrier is a first of two extended portions, and a second of the two extended portions supports a bearing with the rear end of the transfer case housing for rotatably supporting the carrier within the transfer case housing.

47. The transfer case of claim 46 in which the second extended portion of the common carrier includes an external bearing surface that rotatively supports the front output drive shaft and an internal bearing surface that rotatively supports the rear output drive shaft.

48. The transfer case of claim 47 in which the external bearing surface of the second extended portion of the common carrier also supports the parallel offset connection of the front output drive shaft.

49. The transfer case of claim 38 in which the common carrier includes an extended portion supporting the parallel offset connection of the front output drive shaft.

50. The transfer case of claim 49 in which the common carrier includes an external bearing surface that supports the parallel offset connection of the front output drive shaft.

51. The transfer case of claim 38 in which the rear output drive shaft supports the parallel offset connection of the front output drive shaft.